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Recombinant vector containing triplex-forming region of retrovirus that facilitates import of nucleic acid into cell nuclei, useful for gene therapy and preparation of transgenic organisms
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Number of Countries: 087 Number of Patents: 004
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
WO 9955892	A1	19991104	WO 99FR974	A	19990423	200001 B
FR 2777909	A1	19991029	FR 985197	A	19980424	200001
AU 9934272	A	19991116	AU 9934272	A	19990423	200015
EP 1071804	A1	20010131	EP 99915829	A	19990423	200108
			WO 99FR974	A	19990423	

Priority Applications (No Type Date): FR 985197 A 19980424
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
WO 9955892	A1	F	98	C12N-015/86	

Designated States (National): AE AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG US UZ VN YU ZA ZW
Designated States (Regional): AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL OA PT SD SE SL SZ UG ZW

FR 2777909	A1	C12N-015/86	
AU 9934272	A		Based on patent WO 9955892
EP 1071804	A1 F	C12N-015/86	Based on patent WO 9955892

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Abstract (Basic): WO 9955892 A1
NOVELTY - A recombinant vector (A) is new and comprises a polynucleotide (I) that includes a cis-acting central initiation region (cPPT; polypurine track) and a cis-acting terminator (CTS), both of retroviral or retroviral-like origin. It also includes a selected nucleotide sequence (II), i.e. a transgene or gene of interest, and retroviral(-like) regulators of reverse transcription (RT), expression and packaging.
DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the

following:

(1) recombinant retroviral particles (B) containing (I), inserted in a functional orientation with respect to retroviral(-like) regulators of RT;

(2) recombinant retroviral particles (C) containing a recombinant sequence (Ia) consisting of (I) and (II), plus gag, pol and envelope proteins;

(3) recombinant vector particles (D) including a recombinant sequence (Ib) comprising a transgene (plus regulators) and (I);

(4) recombinant cells containing (A)-(D);

(5) therapeutic or immunogenic composition containing (A)-(D) or the cells of (d);

(6) polynucleotide (III), derived from a retroviral genome and containing 80-120, particularly 90-110, nucleotides (nt), flanked by cPPT and CTS; and

(7) polynucleotides (IIIa) comprising (III) and (II).

ACTIVITY - Antitumor; cytostatic; immunostimulant.

MECHANISM OF ACTION - None given.

USE - (A), and related viral particles, are used for transfection and transduction of eukaryotic cells, in vivo or ex vivo (claimed). (A) particularly useful in gene therapy or genetic immunization, (claimed) e.g. for treating Duchenne muscular dystrophy, cystic fibrosis, neurodegeneration, cancer etc. They may also be used in immunotherapy to stimulate responses to e.g. cancer, HIV infections or to reduce response to autoantigens, or to create transgenic animals, plants or cell lines.

ADVANTAGE - (I) promotes transport of (II) into the nucleus, even in non-mitotic cells. Mitotic HeLa cells were transduced with a vector containing the gene for enhanced green fluorescent protein (EGFP), either with (i) the triplex-forming sequence (I) or (ii) without it. After 48 hr, almost 50% of cells in (i) were positive for EGFP, compared with less than 10% in (ii).

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Technology Focus:

TECHNOLOGY FOCUS - BIOTECHNOLOGY - Preferred Vector: In (A) the retroviral sequences are from the genome of a lentivirus, while retroviral-like sequences are from a retrotransposon, particularly of yeast origin. (II) is contained in an expression cassette containing the required regulators. In (C), the gag polypeptide is a lentiviral nucleoprotein, and the pol polypeptide comprises the RT, protease and integrase proteins of a lentivirus. These, and the envelope protein, may be in the form of functional derivatives. Particularly, in (B) and (C), (I) and all the regulators are of lentivirus origin, particularly from HIV (human immune deficiency virus)-type viruses, specifically caprine arthritis-encephalitis virus; equine infectious anemia virus; Visna virus; or human, simian or feline immune deficiency viruses.

Especially (I) is from the HIV-1 genome and is an approximately 200 bp sequence (reproduced), or its mutants, able to form a triplex when the vector is reverse transcribed. The gag, pol and env sequences may all be from HIV, or env is from some other retrovirus (specifically vesicular stomatitis virus), and it encodes amphotropic or ecotropic polypeptides.

Preferred Cells: These are (i) non-mitotic, differentiated eukaryotic cells, e.g. from lung, brain or epithelium, neurons, astrocytes etc. or (ii) are primary eukaryotic cell lines or immortalized cell lines.

Preferred Polynucleotides: (III) is of HIV-1 origin and comprises about 98 nt, including a cPTT of at least 10 nt and a CTS of at least 15 nt. It may be in single or double-stranded form, or is a triplex.

Preparation: (A) are produced by standard methods of cloning, then converted to viral particles by co-transfection of suitable cells with plasmids that provide an envelope protein and packaging sequences.

Title Terms: RECOMBINATION; VECTOR; CONTAIN; TRIPLEX; FORMING; REGION; RETROVIRUS; FACILITATE; NUCLEIC; ACID; CELL; NUCLEUS; USEFUL; GENE; THERAPEUTIC; PREPARATION; TRANSGENIC; ORGANISM

Derwent Class: B04; D16

International Patent Class (Main): C12N-015/86

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File Segment: CPI

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Chemical Fragment Codes (M1):

01 M423 M710 M905 N135 N136 Q233 RA00NS-N

02 M423 M710 M781 M905 N135 N136 P210 P433 P450 P517 P631 P633 P714 P820 Q233 RA00GT-T RA00GT-N RA00GT-U

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